Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Reliability and Continuity of Communications	)	PS Docket No. 11-60
Networks, Including Broadband Technologies	)	
	)	
Effects on Broadband Communications	)	PS Docket No. 10-92
Networks of Damage or Failure of Network	)	
Equipment or Severe Overload	)	
	)	
Independent Panel Reviewing the Impact of	)	EB Docket No. 06-119
Hurricane Katrina on Communications Networks	)	

COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

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COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

I.   INTRODUCTION AND SUMMARY

CTIA – The Wireless Association® ("CTIA")[1] hereby submits the following comments

in response to the Commission's *Notice of Inquiry* in the above-captioned proceedings.[2]

America's wireless companies are committed to maintaining robust, resilient networks that

provide continuity of service to customers both on a day-to-day basis and during major

emergencies. In these Comments, CTIA provides some examples of the considerable efforts

taken by wireless carriers, and the successes they have achieved in the face of major disasters.

There is no incentive that the Commission could give that would be greater than a wireless

broadband service provider's existing incentive to protect its significant network investment and

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[1]   CTIA is the international association of the wireless communications industry for both
wireless carriers and manufacturers. Membership in the organization covers Commercial Mobile
Radio Service ("CMRS") providers and manufacturers, including cellular, Advanced Wireless
Service, 700 MHz, broadband PCS, and ESMR, as well as providers and manufacturers of
wireless data services and products.

[2]   *Reliability and Continuity of Communications Networks, Including Broadband
Technologies*, Notice of Inquiry, FCC 11-55 (2011) ("NOI").

customer confidence. In addition to the individual efforts undertaken by carriers, the wireless

industry has worked collaboratively to develop industry best practices, and CTIA and its

members have coordinated closely with Federal, State and local government officials to develop

strategic plans for maximizing service continuity and reliability. The dynamic wireless

ecosystem operates across a wide range of emergency situations, service territories, and base

station locations, which are not well-suited to one-size-fits-all solutions. In light of the

industry's considerable efforts and demonstrated success, as detailed below, the Commission

should not attempt to mandate the specifics of an effective network survivability strategy as the

end result is nearly certain to be either too specific to be relevant to many network operators or

too vague to be useful for all. If anything, the adoption of prescriptive regulation could actually

harm network reliability by limiting carriers' abilities to implement innovative solutions that are

tailored to their unique situations.

CTIA in particular urges the Commission not to adopt back-up power regulations. Just as

carriers in the competitive marketplace best manage network reliability, CTIA believes network

operators' successes to date in maintaining adequate back-up power during disasters warrants a

hands-off approach in this area. CTIA commends the wireless industry for its efforts, and asks

the Commission to provide wireless carriers with the flexibility to fortify their networks and

develop industry best practices.

II.   THE COMMISSION SHOULD CONTINUE TO RELY ON THE COMPETITIVE
         MARKETPLACE TO PROMOTE NETWORK RESILIENCY AND
         CONTINUITY OF SERVICE.

         A.   Wireless Carriers Already Undertake Substantial Efforts to Promote
                 Continuity of Service and Network Resiliency.

The wireless industry understands that continuity of service and survivability of

broadband networks is extremely important to society. During the aftermath of major disasters,

many individuals rely on wireless as their sole means of communication because of its mobile nature and the speed in which carriers restore service to affected areas. The wireless industry not only accepts this responsibility, but embraces it through multi-faceted efforts to create national and local strategies to promote resiliency of communications infrastructure. Several of these strategies are detailed below.

First, carriers promote continuity of service and network resiliency by building redundant networks where appropriate. Redundancy is a core design principle of mobile broadband networks and is provided through the ability of wireless switches to rapidly and dynamically reroute traffic based on needs and capacity constraints during times of potential overload.[3] Because of the careful strategic planning of wireless network operators, cell sites are not necessarily a "major single point of failure" in many areas. Broadband wireless networks often have numerous cell sites in a market, many of which overlap to provide maximum capacity.[4] This enables networks to remain operational even in the event of individual cell site failure.[5] Provided sufficient flexibility in network management techniques, network operators can increase power at nearby cells to boost coverage and make up for a single cell or group of cells

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[3] *See, e.g.*, Comments of Verizon and Verizon Wireless, PS Docket No. 10-92, at 5 (June 25, 2010) ("Verizon Network Survivability Comments") (reporting that on the morning of President Obama's inauguration, "Verizon carefully monitored traffic in real-time and tuned the network by adjusting the footprint of neighboring cell sites to pick up traffic from sites with surges of use. As a result, Verizon experienced a normal day's performance metrics on Inauguration Day").

[4] Comments of PCIA—The Wireless Infrastructure Association, PS Docket No. 10-92, at 3 (June 25, 2010).

[5] *See, e.g.*, Comments of AT&T Inc., PS Docket No. 10-92, at 8 (June 25, 2010) ("AT&T Network Survivability Comments") ("Even where transmitters or cell site backhaul links may fail, wireless networks often contain coverage redundancies for certain critical or high traffic areas. In such areas, overlapping cell sites are available to pick up the traffic from sites that are not functioning. In such cases, customers should not experience a complete outage."); Verizon Network Survivability Comments at 4 ("Further, Verizon's cell sites in urban areas are overlapping. That is, if one site goes down, neighboring sites have capacity in place to handle the downed site's traffic.").

that have been rendered temporarily inactive. For example, in the wake of the recent tornado in

Joplin, Missouri, Sprint Nextel network engineers routed network capacity to operational cell

sites to promote mobile connectivity.[6]

Second, carriers also employ portable or temporary base stations during emergencies to

promote network continuity.[7] Specifically, during times of heightened demand, decreased

network capacity, or damage to network infrastructure, carriers will provision cellular base

stations on wheels ("COWs"), cellular base stations on light trucks ("COLTs"), and other

temporary base stations.[8] These resources can act as a temporary cell site in the event of damage

to permanent cell sites – for example, Verizon Wireless deployed a COLT to Bismarck, North

Dakota following last month's Missouri River flooding.[9] Within these portable base stations is a

full assortment of equipment to sustain base station operations: (1) a diesel generator to ensure

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[6]   "Sprint to Waive Late Fees, Overage Charges and Roaming Fees for Joplin, Mo.
Residents Affected by Recent Tornado," News Release (May 26, 2011), *available at*
http://newsroom.sprint.com/article_display.cfm?article_id=1924.

[7]   Carriers also will typically increase security measures and monitoring of network
operations in executing their continuity plans. For example, carriers may post constant guards at
key facilities, change access policies, and inspect cell sites and mobile switching centers more
frequently. In addition, carriers may back-up switches and IT systems more regularly, so they
can be restored later if damaged.

[8]   *See, e.g.,* AT&T Network Survivability Comments at 12 (describing AT&T's efforts to
deploy COWs, COLTs, and emergency communications vehicles that use a satellite link to
provide voice and data service within 30 minutes of arriving on site); "T-Mobile Takes Action to
Prepare for Hurricane Earl," News Release (Sept. 2, 2010), *available at* http://newsroom.t-
mobile.com/articles/Hurricane-Earl-Preparation ("T-Mobile has several Cells-On-Wheels
(COWs) pre-staged in neighboring markets to move in and provide additional wireless
communications capacity in the hardest-hit areas."); "Sprint to Waive Late Fees, Overage
Charges and Roaming Fees for Joplin, Mo. Residents Affected by Recent Tornado," News
Release (May 26, 2011), *available at*
http://newsroom.sprint.com/article_display.cfm?article_id=1924 ("To further aid impacts to its
network assets caused by the tornadoes, Sprint has deployed a Cell Site on Wheels (COW) to
provide wireless coverage.").

[9]   "Verizon Adds Network Capacity For Residents Impacted By Missouri River Flooding In
the Dakotas and Iowa," News Release (June 1, 2011), *available at*
http://news.vzw.com/news/2011/06/pr2011-06-01i.html.

that the system is capable of operating even without commercial power; (2) RF equipment such as antenna mounting equipment, antennas, base station controllers and switching gear; (3) air conditioning capabilities to ensure equipment does not overheat; (4) AC power connectivity, should there be the ability to connect to AC power; and (5) lighting and other needs to enable communications.

Third, wireless carriers commonly provision their cell sites and switches with back-up power sources to maintain network operations even when electrical grids fail. As detailed in Section III below, wireless carriers have undertaken numerous efforts to provide back-up power to their cell sites, and these efforts demonstrate that lessons were learned from Hurricane Katrina. Among other ways, wireless carriers provide back-up power at facilities through permanent generators installed at a facility's location, with reserve batteries, and by deploying portable generators during emergencies. T-Mobile recently used back-up power mechanisms to keep service up and running for residents of Joplin, Missouri following May's tornado.[10]

Fourth, wireless carriers often tailor their network resiliency and continuity of service plans to the unique needs of individual localities and the likely disasters experienced in different areas.[11] For example, wireless providers will harden cell sites to withstand hurricane force winds

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[10]   *See, e.g.*, "T-Mobile USA Supports Joplin, Missouri, Residents Affected by This Week's Tornadoes," News Release (May 24, 2011), *available at* http://newsroom.t-mobile.com/articles/t-mobile-supports-joplin-community ("The T-Mobile network is up and running. Since commercial power outages have been widespread, T-Mobile has backup generators and additional fuel in place and ready to continue powering the network, if needed. The company's critical network operations centers have backup and redundancy plans in place, and rapid response engineering teams are focused on keeping service up and running for T-Mobile customers.").

[11]   *See, e.g.*, AT&T Network Survivability Comments at 14-15 (discussing AT&T's specific investments in hurricane-prone areas).

in hurricane zones,[12] and mobile switching centers will be built on pilings or located on upper floors of buildings to protect against flooding in flood-prone areas. This site-specific planning stems from the individual assessments conducted by wireless providers and depends upon continued flexibility to implement the necessary protections for the particular locality. In other areas that are susceptible to disasters, wireless carriers regularly stockpile equipment and provisions, such as spare parts, heavy equipment, sandbags, and tarps. When there is advance notice to prepare for a specific event, carriers will stockpile additional supplies, test equipment, re-check inventories, and ensure fuel tanks are at capacity.[13] This pre-positioning is done not

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[12]   *See, e.g.*, AT&T Network Survivability Comments at 9 ("AT&T requires that, at a minimum, critical equipment comply with the Network Equipment-Building System, which specifies requirements for, among other things, hardening equipment in various environments, including hurricane-prone areas."); "Nine Hurricanes Predicted for 2011 Atlantic Storm Season; Verizon Wireless Network Prepared to Serve Florida Customers," News Release (Apr. 19, 2011), *available at* http://news.vzw.com/news/2011/04/pr2011-04-19.html ("In addition, Verizon Wireless has five 'super-switch' network processing centers across Florida (Jacksonville, Orlando, Tampa Bay, Jupiter and Pembroke Pines), which are designed to withstand Category 5 hurricanes. With hardened shells, these facilities also feature large-scale on-site power generation, various redundant operations and technologies, and other back-up systems to ensure the company's Florida network remains strong, running and reliable.").

[13]   *See, e.g.*, "AT&T Stands Ready for 2011 Hurricane Season in the Southeast," News Release (April 28, 2011), *available at* http://www.att.com/gen/press-room?pid=19790&cdvn=news&newsarticleid=31890&mapcode=mk-att-vital-connections|wireless (listing AT&T's standard pre-storm network preparations); "Leap Restoring Cricket Wireless Service in Wake of Hurricane Ike and Related Storms Across the Midwest," News Release (Sept. 18, 2008), *available* at http://phx.corporate-ir.net/phoenix.zhtml?c=191722&p=irol-newsArticle&ID=1198430&highlight= ("In Texas, Cricket teams spent much of the prior week preparing for Hurricane Ike's arrival by protecting retail operations and securing network equipment which limited virtually all significant damage to the Company's facilities and network. In addition, the Company pre-positioned over 130 back-up generators ahead of the storm and continues to increase the number of generators and mobile service centers it has deployed to support customers impacted by the hurricane."); "Sprint is Prepared for Hurricane Earl's Impact," News Release (Sept .1, 2010), *available at* http://newsroom.sprint.com/article_display.cfm?article_id=1617 ("As it does for every impending tropical storm or hurricane, Sprint is staging backup generators, network engineers, emergency personnel and other critical assets in strategic locations along the Atlantic Coast to manage potential service impacts.").

only at an anticipated disaster site, but in nearby areas to ensure that functional supplies can

quickly be moved into the affected area.[14]

Fifth, the dynamic nature of wireless broadband networks necessitates the use of network

management techniques to address spikes in traffic during an emergency (and also underscores

the critical need for carriers to retain this capability free of restrictions on network management

practices). To promote network resiliency, wireless broadband network operators sometimes

need to track and manage network loads in real time, shifting network resources to needed areas

as demanded by the specific situation.[15]

All told, these strategies have proven extremely successful in preserving and restoring

communications during disasters, emergencies, and other large-scale events. The following

examples illustrate recent successes.

Hurricane Katrina. As detailed in the Report and Recommendations of the Independent

Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, wireless

networks were instrumental in delivering core communications capabilities to both citizens and

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[14]   For example, in advance of hurricanes AT&T stages generators in safe locations for their
immediate deployment once a storm has passed. "AT&T Stands Ready for 2011 Hurricane
Season in the Southeast," News Release (April 28, 2011), *available at*
http://www.att.com/gen/press-
room?pid=19790&cdvn=news&newsarticleid=31890&mapcode=mk-att-vital-
connections|wireless.

[15]   Ultimately, the two keys to successful overload management are (1) sufficient access to
spectrum and (2) operational flexibility. The Commission took an important step toward
enhancing wireless network operators' ability to maintain service during times of heightened
usage by setting a goal of making available 500 MHz of additional spectrum for mobile
broadband within the next ten years. In its future policy making, the Commission should keep in
mind the wireless industry's need for significant operational flexibility with respect to its
network management and other practices to properly ensure that wireless broadband services are
available when they are needed most.

first responders following Hurricane Katrina.[16] Over 25,000 phones were delivered to the area to

provide wireless service. Further, despite near-term difficulties involving loss of power and

backhaul,[17] within one week after Katrina, approximately 80 percent of wireless base station sites

in the affected area were up and running at full capabilities.[18] Moreover, the Katrina Panel noted

that more than 100 COWs were used to successfully restore service throughout the affected

region.[19] Text messaging provided by wireless providers also was highlighted as a service that

offered communications even when voice networks became overloaded with traffic.[20] The

resiliency of the wireless infrastructure allowed public safety responders, as well as the public, to

have access to communications during the aftermath of the storm.

 2011 Hurricane Preparation. As in previous years, the wireless industry has been very

proactive in preparing for this year's hurricane season.[21] Carriers continue to invest significant

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[16] *See* Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, *Report and Recommendations to the Federal Communications Commission*, rel. June 12, 2006 at 9 ("Katrina Report").

[17] *Id*.

[18] *Id*. *See also* Remarks of Robert G. Dawson, CEO of SouthernLINC Wireless, FCC Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks (Jan. 30, 2006); *see also* Wireless Week, News Briefs (September 1, 2005), http://www.wirelessweek.com/Archives/2005/09/News-Briefs-for-September-1,-2005/ ("SouthernLINC Wireless reports that as of this morning, 98 percent of its sites are up and running in Alabama, Georgia, Florida and Mississippi, which is providing communications capabilities for emergency and government personnel, as well as individual customers.").

[19] Katrina Report at 9.

[20] *Id*.

[21] *See, e.g.,* "Sprint Invests More Than $21 Million to Prepare its Alabama Networks for the 2011 Atlantic Hurricane Season," News Release (May 25, 2011), http://newsroom.sprint.com/article_display.cfm?article_id=1914 ("In 2010 and the first quarter of 2011, Sprint invested more than $21 million to enhance and prepare its wireless networks in the state of Alabama, including more than $5 million along the state's Gulf Coast region."); "Mobile Call Processing Centers Designed To Withstand Category 5 Hurricane," News Release (May 25, 2011), https://www.cellularsouth.com/news/2011/20110525a.html (Entering the 2011 hurricane season, Cellular South has deployed two multi-million dollar, hurricane-ready "super switches" that are "designed to withstand a Category 5 hurricane with winds up to 200 miles an

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financial resources and personnel to ensure network continuity. Among other things, carriers

have stocked up on portable generators to provide power to network assets when local power is

unavailable. Carriers also have deployed significant numbers of Satellite COLTS and COWs to

provide immediate restoration of service and to help facilitate wireless and IP communications

among disaster relief and emergency response agencies. Experienced and well-trained

technicians and engineers are on call to help maintain the resiliency of wireless networks when

disaster strikes.

    Haiti Earthquake. In January of 2010, after the island nation of Haiti was shocked by a

7.0 magnitude earthquake, wireless service was partially reactivated within 24 hours of the

quake. Despite suffering substantial losses in personnel and property themselves, local wireless

carriers had the majority of their network capacity restored within days.[22] Thanks in part to the

loan of dozens of temporary base stations from outside providers, the donation of tens of

thousands of handsets by major carriers, and the provision of free international calling to and

from Haiti, wireless communications were crucial in keeping Haiti connected to the world after

the quake.[23]

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hour, connect millions of voice calls, wireless data transmissions and other critical customer
services daily for Cellular South consumer and business customers."); "2011 Hurricane Season
Approaches; Florida Residents Urged To Prepare," Press Release (May 18, 2011),
http://news.vzw.com/news/2011/05/pr2011-05-17f.html (Verizon Wireless has deployed five
"super-switch" network processing centers across Florida, which are designed to withstand
Category 5 hurricanes and which also feature large-scale on-site power generation).

[22]   *See* Suzanne Choney, *Firms Scramble to Repair Haiti Wireless Service*, MSNBC.com,
http://www.msnbc.msn.com/id/34977823/ns/world_news-haiti_earthquake/ (Jan. 22, 2010).

[23]   *Id.*; *see also* Joey Samaniego, *T-Mobile USA Waives Call Charges to and From Haiti*, PC
World (Jan. 14, 2010), *available at*
http://www.pcworld.com/article/186972/tmobile_usa_waives_call_charges_to_and_from_haiti.h
tml; "Letter to Customers: T-Mobile's Efforts to Assist with Disaster in Haiti," News Release
(Jan. 29, 2010), http://newsroom.t-mobile.com/articles/t-mobile-haiti-disaster-efforts-2 ("T-
Mobile is acting swiftly to help improve cellular communications in Haiti. This week we are
working to ship heavy-duty pickup trucks, portable diesel generators and temporary cell sites …
In addition, we are working to provide 10,000 unlocked cell phones and some solar-powered

2011 Tornados. Following the tragic storms and tornadoes that ravaged the southern

United States earlier this year, wireless carriers provided invaluable support for the recovery and

relief efforts for the residents, first responders, and medical personnel in the states of Alabama,

Arkansas, Georgia, Missouri, North Carolina, Oklahoma, Tennessee and Texas.[24]

2010 East Coast Blizzards. Wireless carriers' network redundancy and capacity

management efforts proved vital in responding to severe overload situations caused by the

blizzards that left much of the East Coast homebound in the winter of 2010.[25] Although roads,

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charging accessories."); "Sprint Continues Support of Haiti Relief Efforts with Donation of
Wireless Infrastructure and Long-Distance Services," News Release (Feb. 3, 2010) (Sprint
helped restore communications networks in Haiti with donations of critical wireless and long-
distance equipment and services, including: mobile cell-site equipment, portable generators, cell
towers, and mobile shelters).

[24]   "Sprint Continues to Support Tornado Relief and Recovery Efforts in the South," News,
Release (May 6, 2011), http://newsroom.sprint.com/article_display.cfm?article_id=1891
(Sprint's Emergency Response Team has been serving several agencies, including the DeKalb
County Sheriff's Office of Fort Payne, Ala., Huntsville Hospital and Trauma Center in
Huntsville, Ala., the Tuscaloosa Sheriff's Department of Tuscaloosa, Ala., and the DeKalb
County Emergency Management Agency with COWs, Satellite COLTS, and Sprint ERT Go-
Kits™ to provide immediate access to mobile communications tools for their recovery efforts.);
"Verizon Wireless Helping Customers Stay Connected In Areas Impacted By Recent Storms,"
News Release (May, 10, 2011), http://news.vzw.com/news/2011/05/pr2011-05-10a.html
("Verizon Wireless dispatched Cells on Wheels (COWs) in Tuscaloosa and Pleasant Grove to
boost coverage in three of the hardest hit areas of the state. Temporary towers are operating in
Cullman, Centreville, Jasper and east of Lake Martin to replace towers that were downed or
badly damaged. Verizon Wireless also added capacity in Bessemer, Birmingham, Decatur,
Guntersville, Hueytown and Midfield to accommodate customer's increased calling and data
usage.").

[25]   *See, e.g.,* Comments of Verizon and Verizon Wireless, PS Docket No. 10-92, 4-5 (June
25, 2010) ("The benefits of Verizon's network redundancy and its efforts to manage capacity
were illustrated by the record-breaking snowstorms along the East Coast during February 2010.
The snowstorms caused residential utilization peaks to shift from evening to daytime hours
because many people worked from home … Similarly, while Verizon observed heavy wireless
use in suburban neighborhoods, the snowstorms had little effect on Verizon's wireless
networks."); Reply Comments of T-Mobile USA, Inc., PS Docket No. 10-92, 14 (Sept. 3, 2010)
("Based on T-Mobile's experience with the February 2010 snowstorms in the Mid-Atlantic
States, the capacity of its residential broadband access networks was sufficient to handle sudden
surges in use. Consumers were restricted to their homes for a limited period of time, but network
performance was well within tolerance.").

schools, and businesses were closed for days, the communications infrastructure in these areas remained remarkably intact.

B.   The Wireless Industry Has Supported and Continues to Develop Effective Disaster Preparation Initiatives.

Planning for continuity of service in the event of a disaster has been an integral part of wireless carriers' operations. As such, carriers have developed their own array of best practices to anticipate and resolve problems created by both natural and man-made disasters. CTIA established a Business Continuity/Disaster Recovery Program that provides an annual certification for wireless carriers that meet the planning standards and objectives necessary to ensure that they have prioritized service continuity and disaster recovery.[26] This program consists of ten steps—with several requirements under each step—designed to guide a company in the development of a continuity and disaster recovery program. One of the key strengths of CTIA's Business Continuity / Disaster Recovery Program is that it accommodates the individual risk assessment and decision-making that must be done by each network operator with respect to each network. As detailed above, wireless broadband service providers are constantly assessing the strengths and vulnerabilities of their networks by examining the specific environmental, topographical, geographical, population and cultural circumstances that influence individual networks.

Other efforts undertaken by CTIA member companies include the National Infrastructure Protection Plan, which is a joint effort between the wireless industry and Department of Homeland Security that is designed to "protect[] and ensur[e] the resiliency of the critical

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[26]   *See* Appendix A (attached).

infrastructure and key resources of the United States."[27] CTIA and members of the wireless

industry also have taken leadership roles in the Communications Sector Coordinating Council,

which has worked to develop the Communications Sector Specific Plan ("CSSP"). The CSSP

outlines a bold and innovative vision of public-private partnership "to establish a single strategic

framework for protecting the Nation's critical communications infrastructure" through the

establishment of "a comprehensive risk management framework that defines critical

infrastructure protection roles and responsibilities for all levels of government and private

industry."[28] Further, wireless carriers actively participate in the efforts of the Alliance for

Telecommunications Industry Solutions ("ATIS") Network Reliability Steering Committee

("NRSC") and the Commission's Communications Security, Reliability and Interoperability

Council and former Network Reliability and Interoperability Council, which provide best

practices in this area.[29] Participants draw on their expertise in network design and operations and

crisis management to modify existing practices and develop new ones, particularly with respect

to physical security best practices.

> **C. The Commission Should Recognize the Industry's Significant Efforts to Date, and Should Rely Upon the Marketplace, Not Onerous Regulation, To Promote Network Reliability.**

CTIA and its members have consistently recognized the importance of network

survivability and disaster recovery both to their business models and to their larger role in

American society. There is no incentive that the Commission could give that would be greater

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[27]   U.S. Dept. of Homeland Security, *National Infrastructure Protection Plan*, at 1 (2009), *available at* http://www.dhs.gov/xlibrary/assets/NIPP_Plan.pdf.

[28]   U.S. Dept. of Homeland Security, *Communications Sector Specific Plan* (2007), *available at* http://www.dhs.gov/xlibrary/assets/nipp-ssp-communications.pdf.

[29]   *See* http://www.fcc.gov/pshs/advisory/csric/members.html (CSRIC membership list); and http://www.nric.org/charter_vii/nric_vii_org.html (NRIC VII membership list).

than a wireless broadband service provider's existing incentive to protect its significant network investment and customer confidence. These incentives are not merely theoretical. As detailed above, through substantial efforts to harden network facilities and planning, training and preparation for emergencies and other demand surges, the wireless industry has had unparalleled success in providing essential communications services when they are needed most. Further, the wireless industry has demonstrated its commitment to ensuring that its services are well protected during crises through voluntary, industry-based best practices.

In contrast to these highly successful voluntary efforts, industry-wide regulation would have little benefit and could potentially inhibit innovative means of promoting network resiliency. The wireless industry is part of a highly dynamic ecosystem that is not well-suited to one-size-fits-all solutions. With wireless networks undergoing rapid evolution—especially during the transition to 4G technologies—carriers require flexibility to tailor their continuity plans to their own spectrum, infrastructure, population, topography, and other unique attributes. What is reasonable under one scenario may be wholly inadequate elsewhere or at a different time. The Commission should not attempt to mandate the specifics of an effective network survivability strategy because the end result is nearly certain to be either too specific to be relevant to many network operators or too vague to be useful for all. If anything, the adoption of prescriptive regulation could actually harm network reliability by limiting carriers' abilities to implement innovative solutions that are tailored to their unique situations.[30]

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[30] Chairman Genachowski has stressed that "[w]e need rules that serve legitimate public needs without erecting costly or unnecessary barriers." Prepared Remarks of Chairman Julius Genachowski, FCC, Broadband Acceleration Conference, at 1 (Feb. 9, 2011), http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db0209/DOC-304571A1.pdf. The Commission must keep this guiding principle in mind and recognize that the imposition of regulation is not only unnecessary, but likely counter to the public interest. Carriers already are working tirelessly to promote network resiliency, and compliance with redundant government mandates would risk diversion of resources from these existing efforts.

III. THE IMPOSITION OF BACK-UP POWER REGULATIONS RAISES PARTICULAR CHALLENGES, AND MANDATORY REGULATIONS COULD BE COUNTERPRODUCTIVE.

In the *Notice of Inquiry*, the Commission has sought particular comment on the need for back-up power standards, whether there is a need for Commission regulation in this area, and what minimum standards the Commission should impose with respect to back-up power requirements.[31] CTIA cautions the Commission against regulation in this area and believes that it is best for carriers to retain the flexibility to employ back-up power techniques best suited to their particular networks, rather than have to adhere to a regulatory mandate.

Wireless carriers have undertaken numerous efforts to provide back-up power to their cell sites, and these efforts demonstrate that lessons were learned from Hurricane Katrina. For example, Verizon Wireless has reported that its "mobile switching centers and the vast majority of its cell sites have alternate power supplies via battery backup and generators."[32] Similarly, AT&T has installed "permanent generators and battery backup at all wireless switches and many cell sites."[33] In fact, AT&T has reported that over 99 percent of its wireless sites are engineered with reserve batteries and/or permanent generators.[34] T-Mobile, too, has highlighted the numerous facilities on its wireless network that have battery and generator back-up power.[35]

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[31]   *NOI* at ¶¶ 23-25.

[32]   Verizon Network Survivability Comments at 5.

[33]   AT&T Network Survivability Comments at 12.

[34]   Reply Comments of AT&T Inc., PS Docket No. 10-92, at 17 (Sept. 3, 2010) ("AT&T Network Survivability Reply Comments").

[35]   Comments – NBP Public Notice #2, T-Mobile USA Inc., GN Docket No. 09-51, 15 7 (Oct. 2, 2009) ("T-Mobile, for example, has the ability to separate its network geographically into a West Coast network operations center ('NOC') and an East Coast NOC in the event of a natural disaster. Commercial wireless network facilities are built with battery and generator back-up to avoid disruption of service due to power outages, and individual towers have battery back-up as well. All mobile switching centers have two sources of emergency back-up power in

And Sprint Nextel's efforts "include providing backup power at its facilities through permanent generators installed at a facility's location; the deployment of portable generators to other sites during emergencies where the installation of permanent generators is not feasible; and, more recently, the development and installation of hydrogen fuel cell technology thanks in part to a grant it received in 2009 from the U.S. Department of Energy."[36] These efforts are not limited to the nationwide providers. Tier II and Tier III carriers also have invested time and resources in order to maintain operational networks.

Wireless carriers have made these substantial investments not as a result of regulatory fiat, but because "broadband providers compete in part on the reliability of their service and, consequently, there are strong incentives for those providers to take steps to try to ensure that service is not interrupted, particularly by threats as predictable as power outages."[37] Should the Commission impose back-up power requirements, it would unnecessarily burden wireless carriers and potentially undermine the investments and network planning that have made their networks so successful.

While wireless broadband providers have undertaken considerable efforts to provide back-up power at their facilities, several challenges remain to attaining ubiquitous back-up power: particularly if the Commission were to prescribe specific back-up power measures. The Commission has acknowledged that impediments exist to deploying back-up power solutions, and has sought comment on what factors encourage or discourage network operators from

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the event of a momentary or extended power failure, the base stations necessary for coverage all have battery back-up and are equipped with generator access, and all mobile switching locations are protected by pre-action dry fire systems.").

[36] Comments of Sprint Nextel Corporation, PS Docket No. 10-92, at 6 (June 25, 2010).

[37] AT&T Network Survivability Reply Comments at 17.

implementing back-up power solutions.[38] As CTIA and others have noted previously, these

issues are numerous. For example, some cell sites simply have too little available space to install

back-up power equipment,[39] while others may not be able to support the weight of back-up

power sources.[40] Also, the power systems used by back-up batteries and generators contain lead,

sulfuric acid, oils, and flammable liquids that may subject back-up power facilities to a host of

federal, state, and local environmental and safety laws that strictly limit their placement and

use.[41] Similarly, the modification of cell sites to implement back-up power raises complicated

issues related to zoning and the terms of the leases between wireless carriers and the sites they

operate on.[42] Further, and as CTIA has noted previously, the placement of generators may also

raise concerns about public health and safety, the environment, and consumer welfare.[43]

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[38]   *NOI* at ¶ 25.

[39]   *See, e.g.,* Petition for Reconsideration of CTIA – The Wireless Association®, EB Docket No. 06-119 (Aug. 10, 2007 ("CTIA Back-Up Power Petition"), at attached Declaration of Bill Leonard, ¶ 6 ("Cricket Back-Up Power Declaration") ("Roughly 100 of Cricket's cell sites, including those located in tight spaces such as closets or in church steeples, do not have sufficient space to add batteries or install generators"); *id*. at Declaration of Tony Kent, ¶ 8 ("Cellular South Back-Up Power Declaration") ("Cellular South also has antennas located within church steeples or on other pre-existing structures. Often, cell site equipment is located in buildings, basements or other enclosed spaces for such cell sites, which simply do not have sufficient additional space to accommodate the batteries necessary to provide for 8 hours of back-up power or a generator and its fuel supply.").

[40]   *See, e.g.,* Cellular South Back-Up Power Declaration at ¶ 7 ("A number of Cellular South's cell sites are on rooftops. . . . many of those structures may simply not be able to physically support the weight of either additional batteries or a generator.").

[41]   *See* CTIA Back-Up Power Petition at 13-14 (providing examples of safety codes that would be implicated by back-up power requirements).

[42]   *Id.* at 15.

[43]   *Id.* at 18 ("For instance, the installation of a generator and its combustible fuel on the roof of a school or public building, where many transmitters are located, may not run afoul of any law or ordinance but may nevertheless pose a risk to public health and safety. This is a particular concern where a rooftop location would expose the equipment to lightning or other weather conditions that compromise the equipment, making it more susceptible to fuel leakage or fire.").

Additional challenges to the deployment of back-up power solutions are the unique

engineering features of particular cell sites. For example, wireless providers increasingly

collocate their facilities where feasible, which creates additional challenges to the

implementation of back-up power solutions as sufficient power would be needed for all carriers

operating on the collocated site. Wireless carriers also have deployed facilities such as picocells

and distributed antenna systems ("DAS"), and it is unclear how back-up power would be

implemented at these facilities. Indeed, MetroPCS found that the Commission's back-up power

requirements would be "completely unsuited to [MetroPCS'] DAS architecture."[44]

It is clear, therefore, that there are numerous circumstances under which compliance with

back-up power regulations at a particular wireless facility or cell site would be impossible. In

these cases, mandatory regulations could have the unintended effect of forcing wireless providers

to take cell sites offline because they would not otherwise be able to comply with the

Commission's regulations. This result is clearly counter to the public interest, as it would

adversely impact the coverage and capacity of wireless service in the affected area, and would

undermine the cell site redundancy that has proven effective in promoting continuity of service

during a disaster.

CTIA therefore stresses that the Commission should not impose prescriptive regulations

regarding back-up power. Indeed, it is unclear that the Commission even has the legal authority

to regulate in this area. CTIA believes that the Commission should instead provide carriers with

the flexibility to strengthen their networks and to continue industry best practices in this area. As

demonstrated by the countless efforts undertaken by the wireless industry, carriers are committed

to promoting network reliability, including back-up power measures, and by allowing

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[44] Comments of MetroPCS Communications, Inc., PS Docket No. 10-92, at 5 (June 25, 2010).

competition to drive efforts in this space the Commission will promote innovative and robust wireless broadband networks.

IV.   CONCLUSION

Network reliability and continuity of service are a primary focus of wireless carriers, who compete aggressively on the quality of their networks. Wireless network operators have made enormous efforts in network reliability and, as the examples in these Comments show, the efforts of the wireless industry have had a major impact in restoring communications during disasters. CTIA cautions the Commission against adopting cumbersome regulations that would interfere with the operational flexibility that has yielded highly successful, industry-led results.

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APPENDIX A

Elements of CTIA – The Wireless Association's Voluntary Business Continuity / Disaster Recovery Program

ELEMENTS OF CTIA – THE WIRELESS ASSOCIATION'S VOLUNTARY BUSINESS CONTINUITY / DISASTER RECOVERY PROGRAM

Requirement 1: Project Initiation and Management

Companies must demonstrate that they have done the following:

Defined objectives

Developed project plan and budget

Defined and recommended process structure and management

Obtained senior management commitment

Requirement 2: Risk Evaluation and Control

Companies must demonstrate that they have done the following:

Identified risks, events, and external surroundings that can adversely affect the company

Evaluated the damage that such risks and events could cause and probability of occurrence

Identified controls and safeguards to prevent or mitigate losses to company

Requirement 3: Business Impact Analysis

Companies must demonstrate that they have done the following:

Identified the critical functions of the organization

Identified the impacts resulting from disruptions and disaster scenarios

Determined recovery priorities and timeline objectives

Requirement 4: Developing Business Continuity Strategies

Companies must demonstrate that they have done the following:

Selected business recovery operating strategies

Assessed risk associated with each optional continuity strategy

Requirement 5: Emergency Response and Operations

Companies must demonstrate that they have done the following:

Developed and implemented procedures for response to situations

Established a process for activation of an Emergency Operations Center

Integrated Disaster Recovery/Business Continuity procedures with Emergency Response
procedures

Established Command and Control procedures

Requirement 6: Developing and Implementing Business Continuity Plans

Companies must demonstrate that they have done the following:

Established and implemented Business Continuity and Crisis Management plans

Established procedures to transition from emergency response to crisis management / business
continuity

Established a procedure to maintain and update Business Continuity plans

Requirement 7: Awareness and Training Programs

Companies must demonstrate that they have done the following:

Established a process to educate the company regarding business continuity issues and programs

Developed and presented training programs

Requirement 8: Exercise Business Continuity Program

Companies must demonstrate that they have done the following:

Established a process to drill/exercise the Business Continuity / Disaster Recovery program

Organized and completed exercises/drills

Developed and monitored after-action reports and results of exercises

Requirement 9: Public Relations and Crisis Coordination

Companies must demonstrate that they have done the following:

Developed plans to communicate with employees and management

Developed process to communicate, if necessary, with other stakeholders

Requirement 10: Coordination With External Agencies

Companies must demonstrate that they have done the following:

Established applicable procedures and policies for coordinating response with government

representatives

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